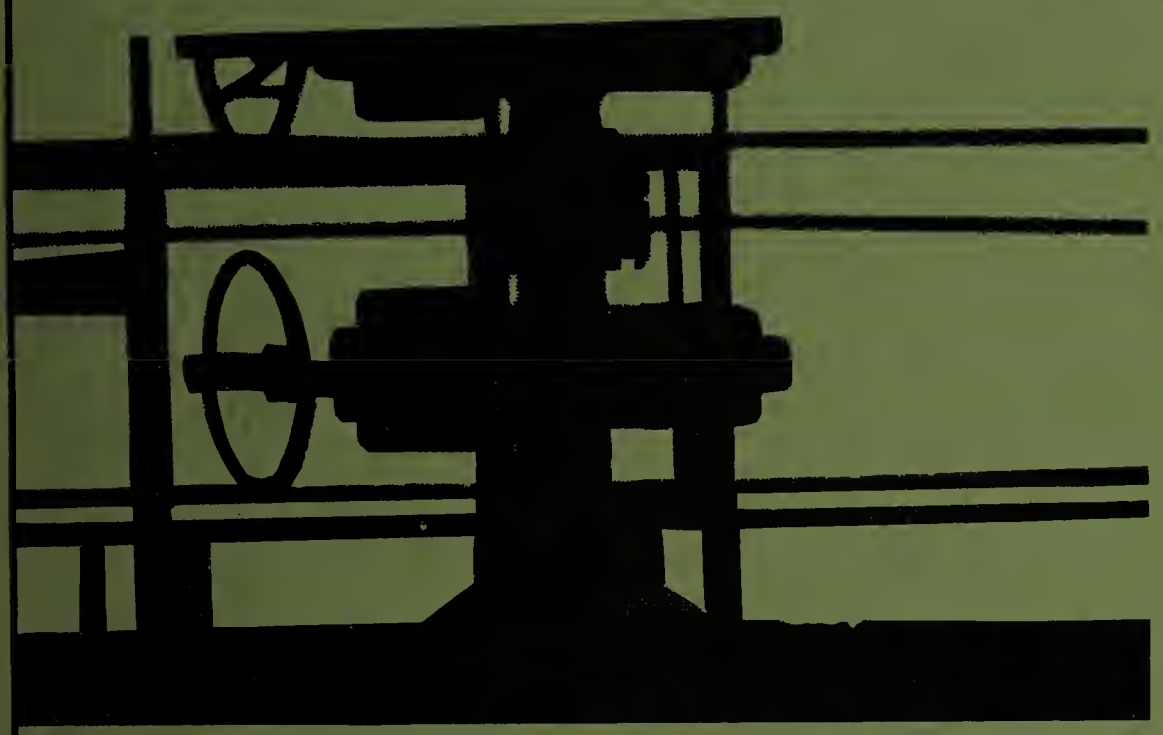
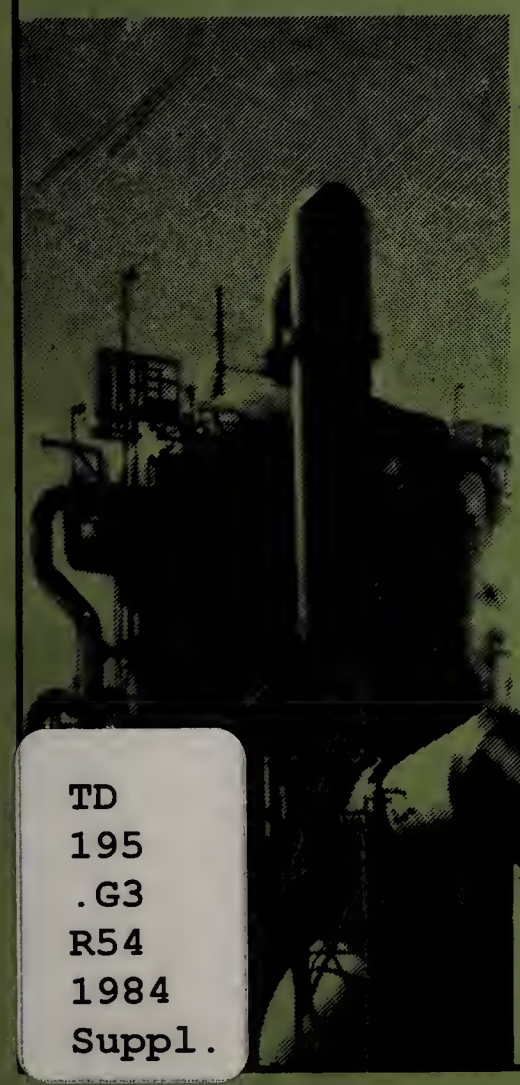
BLM LIBRARY
88074145

# RILEY RIDGE
# NATURAL GAS PROJECT
## RECORD OF DECISION - SUPPLEMENT
## EXXON LABARGE PROJECT
## FEED GAS TRUNKLINE

DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT

OCTOBER 1984





TD
195
.G3
R54
1984
Suppl.

BLM Library
Denver Federal Center
Bldg. 50, OC-521
P.O. Box 25047
Denver, CO 80225

# United States Department of the Interior

**BUREAU OF LAND MANAGEMENT**

United State Department of the Interior
Bureau of Land Management
Wyoming State Office
2515 Warner Office
P.O. Box 1828
Cheyenne, Wyoming 82001

IN REPLY
REFER TO:

Dear Reader:

Enclosed, is the decision on route selection for the Exxon Company, U.S.A. feed gas trunkline which will transport sour gas from the well field to the Shute Creek gas treatment plant. This decision document is a supplement to the Riley Ridge Natural Gas Project Record of Decision signed January 25, 1984. It is provided for your information and use.

In compliance with the National Environmental Policy Act this document states the Bureau of Land Management's decision and supporting rationale for selection of the feed gas trunkline route. Key management considerations, required mitigating measures, and monitoring are described.

Departmental regulation does not require a comment period for decision documents. However, any comments you may have are welcome. They should be directed to Donald H. Sweep, District Manager, Bureau of Land Management, P.O. Box 1869, Rock Springs, Wyoming 82902-1869.

Sincerely yours,

Hillary A. Oden

State Director

Enclosures

#55066005

ID: 88074145

TD
195
.G3
R54
1984
Suppl.

SUPPLEMENT

TO THE

RECORD OF DECISION

FOR

RILEY RIDGE

NATURAL GAS PROJECT

EXXON LABARGE PROJECT

FEED GAS TRUNKLINE

ROUTE SELECTION

Right-of-Way

Case File No.

W-79531 (F)

Prepared by

U.S. Department of the Interior

Bureau of Land Management

October 17, 1984

RECOMMENDATION:

BUREAU OF LAND MANAGEMENT

DISTRICT MANAGER, ROCK SPRINGS

DECISION:

BUREAU OF LAND MANAGEMENT

STATE DIRECTOR, WYOMING

TABLE OF CONTENTS

SUPPLEMENT TO THE RECORD OF DECISION
RILEY RIDGE NATURAL GAS PROJECT

EXXON LABARGE PROJECT
FEED GAS TRUNKLINE ROUTE SELECTION


| Section | | Page No. |
|---|---|---|
| I. | INTRODUCTION/DECISION | 1 |
| II. | ALTERNATIVES CONSIDERED | 3 |
| III. | RATIONALE | 6 |
| IV. | MITIGATION | 10 |
| V. | MONITORING | 11 |
| VI. | CONSULTATION AND COORDINATION | 12 |

APPENDICES

| | | |
|---|---|---|
| APPENDIX A1 | REQUIRED FEDERAL MITIGATION MEASURES | 1 |
| APPENDIX A2 | APPLICANT INSTITUTED PRECAUTIONARY MEASURES | 23 |
| APPENDIX B | FEED GAS TRUNKLINE SEGMENT ALTERNATIVES<br>ADDENDUM EA<br>FINDING OF NO SIGNIFICANT IMPACT (FONSI) | |

MAPS

| | | |
|---|---|---|
| Map 1 | Exxon LaBarge Project - Approved feed gas trunkline and alternatives | Map Pocket |

EXXON LABARGE PROJECT
FEED GAS TRUNKLINE
DECISION DOCUMENT

I. Introduction/Decision

Exxon Company, U.S.A (Exxon), for their LaBarge Project, proposes to construct and operate a gas treatment plant located in Lincoln and Sweetwater counties, Wyoming, to process natural gas produced in a well field located in Sublette County, Wyoming. The gas will be transported from the well field to the plant through a 28 inch (outside diameter) trunkline. The trunkline will carry gas containing 4.5 percent $H_2S$ by volume to the processing plant at a trunkline design inlet pressure of 1,450 pounds per square inch (psi).

The Riley Ridge Natural Gas Project Environmental Impact Statement (EIS), completed in November 1983, analyzed a single proposed routing for two parallel trunklines, one to Exxon's Shute Creek plant site and one to Northwest Pipeline Company's Craven Creek plant site. The EIS identified possible impacts to the health and safety of residents who live near the feed gas trunkline if a rupture were to occur. As a result, the health and safety mitigation measure H-4 (page 3-9 of the FEIS) was developed. This measure states that:

> No sour gas trunkline would be located closer than 1 mile to a populated area or sensitive receptor as identified on Map 2-1 in the FEIS. The applicants must use the best available engineering design (i.e., alignment, block valve type and spacing, pipe grade, etc.), best construction techniques (i.e., pipe depth, hydrostatic testing, etc.), and monitoring plans (i.e., surveillance, warning signs, etc.) as approved by the Authorized Officer to minimize both the probability of rupture and radius of exposure in the event of an accidental pipeline release of sour gas.
>
> A variance from the 1-mile distance may be granted by the Authorized Officer based on detailed site-specific analysis that would consider meteorology, topography, and special pipeline design and/or construction measures. This analysis would ensure that populated areas and sensitive receptors would not be exposed to an increased level of risk.

Alternative trunkline routings were analyzed subsequent to the EIS in the document entitled "Supplemental Environmental Assessment to the Riley Ridge Natural Gas Project FEIS - Sour Gas Pipeline Alternatives." This environmental document is included as Attachment C in the Riley Ridge Natural Gas Project Record of Decision (ROD), signed January 25, 1984.

The Supplemental Environmental Assessment (EA) analyzed three alternative routes for the trunkline. The result was a finding of no significant impact (FONSI). The ROD, however did not approve an alignment, but concluded that any of the routes would be acceptable provided that a risk assessment, incorporating the requirements of mitigating measure H-4, showed that populated areas and sensitive receptors (i.e., residence, populated area) would not be exposed to an increased level of risk.

On July 12, 1984, Exxon submitted to the BLM the (draft) Risk Assessment of the populated areas and sensitive receptors located along their preferred trunkline route (Alternative 1 in the Supplemental EA). The objective of this risk assessment was to determine the level of risk to which each sensitive receptor, within one mile of the pipeline, would be exposed, and to determine whether this risk is acceptable with respect to the established criteria in the EIS.

Between March 23 and July 12, 1984, Exxon met with residents along the proposed trunkline. The purpose of the meetings was to discuss the proposed alignment (Alternative 1 of the Supplemental EA), to explain the health and safety design measures, and contingency provisions.

As a result of the above meetings and the draft risk assessment, Exxon proposed an alternative alignment for two segments of the proposed feed gas trunkline (see Appendix B, Maps A and B). These proposed changes were presented by Exxon at the BLM public meeting held on July 24, 1984, when Exxon's feed (sour) gas trunkline proposal was presented and discussed. An "Alternative Trunkline Routing Addendem" to the draft Risk Assessment for the changes in alignment was submitted to the BLM by Exxon several days after to the public meeting. Exxon's revised Individual Risk Assessment was submitted to the BLM on September 26, 1984.

An Addendum EA to the "Supplemental Environmental Assessment to the Riley Ridge Natural Gas Project FEIS - Sour Gas Pipeline Alternatives" was prepared on Exxon's two alternate alignment changes. A finding of no significant impact (FONSI) was signed September 27, 1984, (see Appendix B).

This decision document is a supplement to the Riley Ridge Natural Gas Project Record of Decision published in January 1984. It addresses the decision for the feed gas trunkline right-of-way routing of Exxon Company, U.S.A. It does not include Northwest Pipeline Company's trunkline right-of-way routing.

The decision of the Bureau of Land Management is to approve Alternative 1 Reroute as the alignment for Exxon's feed gas trunkline. This decision is based on a careful review and anlysis of the environmental consequences identified in the Riley Ridge Natural Gas Project Environmental Impact Statement (EIS) regarding a proposed trunkline route; a Supplemental Environmental Assessment (EA) to the EIS on alternative trunkline routes; an Addendum to the Supplemental EA on an Alternative 1 Reroute; comments received through letters, public meeting, and petition; and a Health and Safety Individual Risk Assessment. Rationale for this decision is found in Section III.

## II. Alternatives

### A. Alternatives Considered (See Map 1, Back Cover Pocket)

Proposed Action - The draft EIS analyzed a trunkline route which followed the existing pipeline corridor created by Northwest Pipeline Company's (now Williams Company) two existing natural gas pipelines. These two pipelines run from the Big Piney Compressor Station to the Opal Gasoline Plant.

Exxon's trunkline would originate at a well field pipeline terminus point in the vicinity of Section 1 of T. 27 N., R. 114 W. At a point approximately 30.5 miles south along the Northwest pipeline corridor in Section 20, T. 23 N., R. 113 W., the trunkline would turn southeast for 10.5 miles to the Shute Creek Plant. The total length of this alignment would be 41 miles. There would be eleven sensitive receptors within one mile of the trunkline.

Alternative 1 - The alignment for this alternative would begin at the same point as the Proposed Action (north of Dry Piney Camp) and proceed east to Saddle Ridge, then turn southeast to a point approximately 0.6 mile east of Calpet. From there it would head south crossing LaBarge Creek approximately 3/4 mile west of Northwest's western-most natural gas pipeline along the section line common to Sections 26 and 27 of T. 26 N., R. 113 W. A second option for crossing LaBarge Creek would be to cross approximately 1.5 miles west of Northwest's western-most pipeline. Either crossing would necessitate the purchase of a sensitive receptor.

After crossing Names Hill, Northwest's existing corridor would be followed over Holden Hill into Holden Hollow. There the trunkline would proceed southeast to AMOCO's pipeline where it would generally parallel its crossing of Fontenelle Creek in Section 31 of T. 25 N., R. 112 W., and Section 2 of T. 24 N., R. 113 W. After crossing Fontenelle Creek the turnkline would proceed south-southeast along AMOCO's pipeline route to a point in Section 30 of T. 24 N., R. 112 W. where the trunkline would turn southeast crossing State Highway 189 in Section 32 of T. 24 N., R. 112 W., and then turn south-southeast along an existing seismograph trail to the Shute Creek plant. The total length of this alignment would be 37.5 miles. There would be nine sensitive receptors within one mile of the trunkline.

Alternative 2 - In this alternative the trunkline would begin at the same point as the Proposed Action and Alternative 1. Its alignment would be the same to a point just south of the access road into Western Camp. There it would stay west of Calpet (1.75 miles) following the toe of Hogsback Mountain to the crossing of LaBarge Creek near the narrows in Section 19 of T. 26 N., R. 112 W. Having crossed LaBarge Creek the trunkline would angle east-southeast until it intersects Alternative 1. Thereafter, the alignment would be the same as Alternative 1. The total length of this alignment would be 39 miles. There would be six sensitive receptors within one mile of the trunkline.

Alternative 3 - This alternative would begin the same as the Proposed Action and Alternatives 1 and 2. The alignment would be the same as Alternative 2 until after crossing LaBarge Creek. There the trunkline would continue south crossing Names Hill, Muddy Creek, Holden Hill, and dropping into Holden Hollow approximately two miles west of Alternative 1. The trunkline would then turn southeast down Holden Hollow until intersecting Alternative 1. Thereafter, the alignment would be the same as Alternative 1. The total length of this alignment would be 40 miles. There would be six sensitive receptors within one mile of the trunkline.

Alternative 1 Reroute - This alternative would be the same as that described for Alternative 1, with the exception of the following two components.

A northern component of the trunkline, which includes a new origin of the trunkline, would originate at a single well field dehydration unit located in the NE/4 of Section 35, T. 28 N., R. 114 W. This site is on private land purchased by Exxon. It is approximately one mile northwest of the original trunkline starting point and approximately 1.5 miles north of Dry Piney Camp. The trunkline would be routed southeasterly 2.9 miles to Saddle Ridge. This reroute would place the trunkline further north and east of Dry Piney Camp.

A second or southern component would reroute the trunkline further west of the receptors on LaBarge Creek Road. This route would pass more than one mile west of the refinery building, workshop, and residence on LaBarge Creek Road.

These two reroutes of Alternative 1 would mean the total length of this alignment would be 38.5 miles. The number of sensitive receptors within one mile of the pipeline would be five.

B. Alternatives Considered But Eliminated (See Map 1, Back Cover Pocket)

West Hogsback Ridge - A trunkline alignment was considered that would begin at the same point as the Proposed Action but would follow the west side of Hogsback Ridge, dropping into the LaBarge Creek drainage near Viola, and then angle southeast down the northside of LaBarge Creek Road and intersect the Narrows Alternative. The rest of the alignment would be the same as Alternatives 2 or 3. The length of this alignment would be approximately 39 miles. There would be seven sensitive receptors within one mile of the pipeline.

East Green River - A general trunkline alignment was considered that would begin at the same point as the Proposed Action and proceed east along Dry Piney Creek road, across the Green River, then turn south traversing the rugged breaks east of the Green River to a point south of Fontenelle Dam where the Green River would be crossed a second time and then angle southwest to the Shute Creek plant.

A change in this route was made as the result of input by the public at the July 24 public meeting. The route would be the same as described above except that after the north crossing of the Green River, the route would ascend Chapel Canyon to the west rim of the Little Colorado Desert. The route would then turn south, generally following the county line road to the second or south crossing of the Green River. The trunkline would then turn southwest to the Shute Creek plant.

The length of this route would be approximately 54 miles. There would be two sensitive receptors within one mile of the pipeline.

C. Environmentally Preferred Alternative

The Agency (BLM) Dicision, Alternative 1 Reroute, is synonomous with the environmentally preferred alternative. The route selected provides the safest location for a trunkline and the most desirable combination of suitable topography, accessibility, soil stability, and length.

III. Rationale

Protection of public health and safety was a high priority consideration in final route selection. Locating a route with the fewest number of sensitive receptors within one mile of the trunkline was the first concern. Table 1 summarizes the number of receptors located within one mile of each route. Of the seven routes considered, the East Green River route, Alternative 1 Reroute, and Alternatives 2 and 3 (referred to as the Narrows route) have the fewest receptors with 1, 5, 6, and 6 respectively.

TABLE 1

SENSITIVE RECEPTORS WITHIN ONE MILE OF THE TRUNKLINE ROUTES CONSIDERED

| Miles of Trunkline & Trunkline Receptors | Proposed Route (EIS Route) | Alt. 1 Route (Supp. EA) | Alt. 2 Route (Supp. EA) | Alt. 3 Route (Supp. EA) | Alt. 1 Reroute (Supp. EA Addendum) | West Hogs-back Route | East Green River Route |
|---|---|---|---|---|---|---|---|
| Miles of Trunkline | 41.0 | 37.5 | 39.0 | 40.0 | 38.5 | 39.0 | 54.0 |
| Number of Receptors | 11 | 9 | 6 | 6 | 5 | 7 | 2 |

The East Green River route was initially eliminated from further consideration because of the two crossings of the Green River, and because of the highly erodable soils and steep, rugged terrain associated with the breaks east of Green River. As a result of the LaBarge public meeting, held on July 24, 1984, when a route further east was recommended, additional consideration was given to an East Green River route. Instead of constructing through the breaks, the pipeline east of the Green River would ascend Chapel Canyon and be located along the "county line road." This would avoid the rugged breaks.

As an alignment for a pipeline, the East Green River route would be a good one. But the decision is not to select this route because of its overall length (15.5 miles longer), the two Green River crossings, highly erodable soils between the Green River and the Little Colorado Desert Rim, and because state-of-the-art trunkline design will be used and incorporated into the materials, construction features, and operating practices which, in the judgement of the Bureau, will ensure the protection of public health and safety. The design measures that will be implemented are listed in Appendix A. 2.

In the Bureau's judgement, Exxon has surpassed the conditions set forth in the Riley Ridge ROD mitigating measure H-4. An explanation of how they have done this follows:

The condition set forth in the H-4 measure that "no sour gas trunkline would be located closer than 1 mile to a populated area or sensitive receptor" was developed after first determining what constituted acceptable risk. After reviewing the Canadian Government, Province of Alberta, zoning regulations (Whittaker, J.D., et al, "Risk-Based Zoning for Toxic Gas Pipelines," 1982; Angle R.P., "Sour Gas Facilities: A Case Study of a Public Risk in Alberta," 1983) regarding trunkline distance from sensitive receptors, and reviewing national level position on acceptable risk, the Bureau of Land Management, through the Wyoming State Director, concluded that public risk of exposure to a lethal level of $H_2S$ would not be acceptable if that risk (including the additive effect of two trunklines) exceeded 1 chance per 100,000; or that the risk of exposure to a significant level exceeded 3 chances per 100,000.

With these parameters set, modeling a simulated rupture of a 30-inch pipeline using U.S. Department of Transportation (DOT) standards, which included probability of specific meteorological conditions resulting in lethal concentrations of $H_2S$ at a specific receptors, revealed a risk of 0.7 chance per 100,000 at 0.45 miles and a 0.2 chance per 100,000 at 0.86 miles. ~~for two trunklines~~. This analytical modeling suggested that the acceptable risk distance would be met at less than 0.45 miles. However, to add conservatism and to ensure maximum consideration of sensitive receptors within proximity of the trunkline, a 1-mile distance was decided upon as the zone or corridor of analysis. This 1-mile distance was not meant to imply or to be interpreted as a no-mans-land; nor should property be zoned or appraised any differently than that of the natural gas pipelines which will occupy the same corridor.

The "Health and Safety Individual Risk Assessment," required by the Riley Ridge Natural Gas Project Record of Decision mitigating measure H-4, for sensitive receptors within one mile of the trunkline clearly demonstrated that these sensitive receptors would not be exposed to an increased level of risk. Table 2 presents the annual risk to the receptors that are located within one mile of the Alternative 1 Reroute alignment of the trunkline.

TABLE 2
ANNUAL RISK TO RECEPTORS WITHIN 1 MILE OF THE TRUNKLINE
FOR THE MOST PROBABLE RUPTURE CASE
(ALTERNATE PIPELINE ROUTE)

| Receptor | Closest Distance to Trunkline (miles) | Direction from Trunkline | Individual Annual Risk of Exposure (Chances per 100,000) Significant Dose | Lethal Dose |
|---|---|---|---|---|
| Western Camp | 0.48 | Southwest | 0.2 | 0.05 |
| Calpet | 0.62 | Southwest | 0.2 | 0.03 |
| Rainbow Camp | 0.97 | West | 0.05 | 0.001 |
| LaBarge Creek Ranch | 0.86 | East | 0.6 | 0.1 |
| Fontenelle Creek Ranch | 0.92 | Southwest | 0.07 | 0.004 |

Based upon Exxon's design standards the highest annual risk of a lethal dose (1,000 ppm instantaneous) is 0.1 chance per 100,000. The highest chance for a significant dose (500 ppm instantaneous or 100 ppm for 15 minutes) is 0.6 chance per 100,000. This is comparable to the annual risk of fatality due to lightning (.05) or a falling object (0.6) (standard, 1969, Insurance, October 25, 1969; Pochin, 1974).

The Narrows Routes (Alternatives 2 and 3) were not selected because of the increased stress and torque that the trunkline would be subjected to along the toe of Hogsback Ridge. Pipeline location technology warns against locating pipelines perpendicular to the normal direction of land movement for long term periods. This kind of situation would subject the trunkline to an increased risk of rupture.

The approved route (Alternative 1 Reroute) will follow existing pipelines which have in effect established a corridor through this area. Northwest Pipeline Company owns two natural gas lines which are 30 inches in diameter. A third 8-inch pipeline, which transports oil, is owned by AMOCO.

The reroute of Alternative 1 placed the trunkline further west of the receptors on LaBarge Creek road. The refinery building, workshop, and residence would be located more than one mile away from the trunkline. The two trailer houses and associated properties located on LaBarge Creek Road have been purchased by Exxon.

The relocation of the terminus point for the well field pipeline gathering system, and thus the trunkline origin, from the SE/4 Section 1 of T. 27 N., R. 114 W. to the NE/4 Section 35 of T. 28 N., R. 114 W., places Dry Piney Camp more than one mile away from the trunkline.

These two routing changes to Alternative 1 reduce the number of receptors within one mile of the trunkline from nine to five.

Given the specific materials, construction, and operation design precautions to ensure public health and safety, this trunkline will have the lowest risk of any pipeline in the area because of the overdesign and safety devices being used. The route selected also provides the safest location for a trunkline and the most desirable combination of suitable topography, accessibility, soil stability, and length.

Implementation of the Agency Decision will be subject to the mitigation measures identified in Appendix A of this supplement to the Riley Ridge Natural Gas Project Record of Decision. Other measures subsequently identified and deemed necessary by the Authorized Officer may be added.

All necessary and practical measures to ensure protection of public health and safety, and to avoid or minimize environmental harm have been adopted. Intensive inspection and enforcement will be performed to ensure that the decision is carried out in accordance with the required mitigation.

## IV. Mitigation

The mitigation measures contained in the Riley Ridge Natural Gas Project Record of Decision, that pertain to the feed gas trunkline, have been excerpted and listed in Appendix A of this ROD supplement. These measures are specific requirements with which Exxon will have to comply. Each will be addressed specifically relative to design, materials, construction, operation, contingencies, and monitoring in Exxon's construction and use (CU) plan. The CU plan will than become part of the terms and conditions of the right-of-way grant. The precautionary measures instituted by Exxon in the design, construction, and operation of the LaBarge Project to reduce pipeline incident rates is also included in Appendix A.

V. Monitoring

Monitoring will be conducted as specified in the Riley Ridge Natural Gas Project Record of Decision. This will include not only standard compliance monitoring during construction and follow-up restoration, but also review and quality control by the Riley Ridge Implementation Task Force (see the Riley Ridge ROD, page 35 and Attachment A for details) to ensure compliance with the CU plan.

## VI. Consultation and Coordination

In addition to that specified in the Riley Ridge ROD, the following additional consultation and coordination occurred.

Between the 23rd and 29th of May 1984, letters were received from residents of the LaBarge area who expressed interest and concern in the proposed feed gas trunkline. These letters requested that a public meeting or hearing be held. A public meeting was scheduled and held on July 24, 1984, at the LaBarge School in LaBarge, Wyoming. It was publicized through the media, and individually by letter to each of the parties who requested the meeting. The Governor's contact for the Riley Ridge Project, Nancy Freudenthal, was informed by phone and at the same time extended an invitation to attend. The meeting was attended by approximately 80 residents of the area. A record of the public meeting was made. The transcript may be reviewed at the Rock Springs District Office, or a copy may be purchased from the Wyoming Reporting Service Inc., P.O. Box 165, Cheyenne, Wyoming 82003, or call (307) 635-4424.

Prior to the public meeting, Exxon scheduled and held meetings with all residents within one mile of the trunkline (the route for Alternative 1). The BLM's Pinedale Resource Area Manager also attended several of these meetings. The purpose of the meetings was to explain the propsal, including a description of the trunkline design, its construction, and operation; the EIS that had been completed; selection of the Shute Creek plant site; and the basis for turnkline design and routing. A written record of each meeting was made including a list of attendees and questions-comments/responses resulting from the presentation. The following individual meetings were held:

| Meeting with | Date | No. of Attendees 1/ |
|---|---|---|
| Mr. & Mrs. Donald Thayer | 3-23-84 | 2 |
| Mr. & Mrs. Aron McGinnis<br>Mr. & Mrs. Myles McGinnis<br>Mr. Sam Deloch | 3-24-84 | 5 |
| Dry Piney Camp | 7-9-84 | 13 |
| Western Camp | 7-9-84 | 11 |
| Mr. & Mrs. Jack Sims | 7-9-84 | 2 |
| Calpet & Rainbow Camp | 7-12-84 | 13 |

1/ Non Exxon or BLM persons.

A petition was received in the Rock Springs District Office on September 14, 1984. It was initiated by the LaBarge Concerned Homeowners Association. The petition was for locating the feed gas trunkline on the east side of the Green River. This would place the pipeline downwind from those living in the valley. Their second preference was for either of the Narrows Routes (Alternatives 2 and 3 in the Riley Ridge ROD). A total of 24 names were included in the petition.

# APPENDIX A

# FEED GAS TRUNKLINE

A.1 REQUIRED FEDERAL MITIGATION MEASURES

A.2 APPLICANT INSTITUED PRECAUTIONARY MEASURES

# APPENDIX A
# FEED GAS TRUNKLINE

1. Required Federal Mitigation Measures

The measures included in the Riley Ridge Natural Gas Project Record of Decision (ROD) relative to the feed gas trunkline will be a required part of implementation. The measures contained in Attachment B of the ROD which apply specifically to the feed gas trunkline have been excerpted and included in this Appendix. Other Riley Ridge Natural Gas Project ROD sections concerning the feed gas trunkline which have not been excerpted are as follows:

| | |
|---|---|
| Design Safety Aspects | page 9 |
| Siting Considerations | page 10 |
| Emergency Procedures | page 10 |
| Design Requirements | page 10-11 |
| Cultural Resources Compliance Guidelines | page 37; Appendix E-4 FEIS |
| Erosion Control, Revegetation, and Restoration Guidelines | page 38; Attachment B-7 |

A.1 Feed Gas Trunkline Required Federal Measures

GENERAL

1. PART 2880 - RIGHT-OF-WAY UNDER THE MINERAL LEASING ACT

Subpart 2880 - Oil and Natural Gas Pipelines and Related Facilities, General.

Subpart 2881 - Terms and Conditions of Rights-of-Way Grants and Temporary Use Permits.

2881.1 Nature of Interest

2881.1-1 Nature of Right-of-Way Interest

a. The United State retains a right to use a right-of-way and temporary use permit area or authorize the use of it to others in any manner not inconsistent with pipeline construction, operation, maintenance, and termination. The holder of a right-of-way grant or temporary use permit has no right to any of the product of the land including, but not limited to, timber, forage, mineral, and animal resources. The holder may not allow the use of a right-of-way or temporary use permit area by others except its contractors, subcontractors, employees, agents, or servants for purposes of construction, operation, maintenance, or termination of the pipeline.

b. A holder shall not use a right-of-way and temporary use permit area for any purpose other than for the construction, operation, maintenance, and termination of the pipeline specified in the holders right-of-way grant. A holder shall not locate or construct any other pipelines, including looping lines, or other improvements within a right-of-way without first securing appropriate authorization therefore.

c. The width of a right-of-way shall not exceed 50 feet, plus the ground occupied by the pipeline (that is, the pipe and related facilities) unless the Authorized Officer finds and records the reasons for his finding, that a wider right-of-way is necessary for operation and maintenance after construction, or to protect the environment or public safety.

d. An applicant may apply to the Authorized Officer for a wider right-of-way in limited areas if necessary:

(1) For the operation and maintenance of the project after construction.

(2) To protect the environment.

(3) To provide for the public safety. If the Authorized Officer finds that the additional width is necessary for one of the above reasons, he may authorize a wider width. Such authorization shall include a written report recording the reasons why the additional width is necessary.

2. A Notice to Proceed requirement will be appended to these (rights-of-way, grants, permits) stipulating that no construction or use shall occur until detailed construction and use plans have been received and approved by the Authorized Officer.

3. All activities associated with the project will be conducted in a manner that will avoid or minimize degradation of air, land, and water quality. In the construction, operation, maintenance, and termination of the projects, activities will be performed in accordance with applicable air and water quality standards, and related plans of implementation, including but not limited to, the Clean Air Act, as amended (42 USC 1321) and the Clean Water Act as amended (USC 1251).

4. Permittees and other regular users of public lands affected by construction of the projects will be notified in advance of any construction activity that may affect their businesses or operations. This will include, but not be limited to, signing of temporary road closures, and notification of proposed removal and/or cutting of fences, and disturbances to range improvements or other use-related structures.

5. During the final survey of the linear facilities (pipelines, transmission lines, etc.), the centerline and outside boundaries of the linear facilities will be staked and flagged. Stakes will be no more than 200 yards apart on open rangelands and a maximum of 100 feet apart on forested lands. Holder/operator name and station numbers of the survey will be written on each stake or hub. Where the linear facilities parallel an existing line, the existing line will be flagged where necessary to void disturbance of the existing line. The Authorized Officer reserves the right to make adjustments in right-of-way alignment as may be necessary to minimize environmental impacts.

6. The Company shall, at all times during construction, maintenance, and operation, maintain satisfactory spark arrestors on all steam and internal combustion engines and on all flues used in operations under this grant.

7. The Company shall furnish the Authorized Officer with engineering drawings of the existing ground profile and plan, and profile views of the facilities to be constructed. These drawings must portray typical cross sections (i.e., cut, fill, bench sections, etc.) at representative points along or within the right-of-way.

8. Prior to placing the pipeline system in operation, the Holder shall inspect all new main line girth welds using radiographic or other techniques approved by the Authorized Officer.

   Holder agrees that any welding required on the converted line on federal lands shall be inspected using radiographic or other techniques approved by the Authorized Officer.

   Holder shall provide for inspection of pipeline system construction to ensure compliance with the approved design specifications and these stipulations.

9. The Company shall conduct all activities directly or indirectly associated with the construction, operation, and maintenance of this facility within the limits of these (rights-of-way, permits) are needed, the Company shall obtain a separate authorization for that use.

10. The Company shall construct, operate, and maintain the facilities and structures within these (grants, permits) in strict conformity with the descriptive and technical data which was furnished the BLM in connection with the application for these (grants, permits). Any relocation, additional construction, or use which is not in accord with such data may not be initiated without the prior written approval of the Authorized Officer. Noncompliance with the above will be grounds for the Authorized Officer to shut down the operation until compliance is obtained.

11. Holder shall conduct all construction, operation, and maintenance activities in a manner that will void or minimize degradation of air, land, and water quality. Toxic material shall not be released in any lake or water drainage. All construction work and subsequent use of the right-of-way shall be consistent with applicable federal, state, and local laws and regulations relating to safety, water quality, and public health. Unless otherwise approved in writing by the Authorized Officer, dikes or cofferdams shall be installed to separate concrete work areas from lakes or streams during construction. Mobile ground equipment shall be kept within the right-of-way and out of the waters of lakes, streams, or rivers except as permitted by the Authorized Officer.

12. It shall be the responsibility of the Holder to comply with the construction practices and mitigating measures established by 33 CFR 323.4 which set forth the parameters of the "nationwide permit" required by Section 404 of the Federal Water Pollution Control Act. If the proposed action exceeds the parameters of the nationwide permit, the Holder shall obtain an "individual permit" from the appropriate office of the Corps of Engineers and provide BLM a copy of that permit prior to commencing actual construction. Failure to comply with this requirement shall be case for revocation of this right-of-way grant.

13. These (rights-of-way, permits) do not convey access across private, patented, state or fee lands. These (rights-of-way, permits) are issued on the condition that the Company has secured or will secure the necessary additional rights-of-way. The Company shall be required to show that they have secured consent for access across private, patented, state, or fee land prior to the BLM Office granting rights-of-way or permits.

14. No signs or advertising devices shall be erected on the area designated by this permit or highways leading thereto, without prior approval by the BLM as to location, design, size, color, and message. Erected signs shall meet standards provided by the Authorized Officer and be maintained or renewed as necessary.

15. The Company shall protect all survey monuments, witness corners, reference monuments, and bearing trees within these (rights-of-way, permits) against disturbance during construction, operation, maintenance, and rehabilitation. If any monuments, corners, or accessories are destroyed, obliterated, or damaged during construction, operation, or maintenance, Holder shall secure the services of a Registered Land Surveyor to restore the disturbed monuments, corners, or accessories, at the same location, using surveying procedures found in the Manual of Surveying Instructions for the Survey of the Public Lands of the United States, latest edition. Holder shall record such survey in the appropriate count and shall send a copy to the BLM Wyoming State Office, P.O. 1828, Cheyenne, Wyoming 82001.

16. Garbage and other refuse will be stored in containers at all times and disposed of at least once a week in authorized county-approval sanitary site or landfill. Used engine oil which is changed on Federal lands will be stored in suitable containers and delivered to secondary refineries. No fuel, oil, or other hydrocarbon spills are permitted. If such a spill accidentally occurs, the Authorized Officer will be notified immediately and corrective measures undertaken as directed.

17. Areas subject to mudflows, landslides, mudslides, avalanches, rock falls, and other types of mass movement will be avoided where practical when locating linear facilities. Where avoidance is not practical, the design, based upon detailed field investigations and analysis, will provide measures to prevent the occurrence of mass movements.

18. The Company shall obtain necessary access permits from the county and Wyoming Highway Department for approach to a county, state, or U.S. highway prior to commencing any construction activity associated with the (grant, permit).

19. WF-1 Measure: State wildlife laws and regulations will be posted in conspicuous places at the job sites and work camps.

Effectiveness: Posting laws and regulations may help to reduce wildlife violation incidences or at least eliminate the violator's excuse of ignorance of wildlife laws.

Application: This measure will be applied to the Proposed Action and all alternatives.

20. H-1 Measure: Companies will be required to provide automatic shut down systems on sour gas trunklines for all block valves.

Effectiveness: Automatic operation of block valves was assumed in the modeling conducted for $H_2S$ releases from trunkline ruptures. Automatic block valves are effective in limiting the amount of sour gas released during a pipeline rupture.

Application: This measure will be applied to the Proposed action and all alternatives.

21. H-3 Measure: Companies will develop community contingency and evacuation plans in coordination with the public safety organizations including community civil defense organizations, sheriff, highway patrol, fire departments, livestock operators residing in the area, and other human inhabitants, etc., for accidental release of $H_2S$ and in accordance with appropriate Federal and State regulations. Plans will include early warning and mass alert systems, and human evacuation procedure. Communities involved will be Marbleton, Big Piney, Western Camp, Dry Piney Camp, Calpet, and LaBarge. Outlying areas include all other permanent residences within the project area or areas of influence, and temporary human occupancy areas (i.e., Fontenelle Recreation Area).

Effectiveness: Community and outlying area contingency and evacuation measures would be an effective means of insuring that an organized, systematic approach towards alerting and evacuating the populations of the communities and outlying residence occurs. The contingency and evacuation plans will address possible $H_2S$ hazards and describe the procedure that will be used to protect human life. These plans would include conern for any receptor within the area of influence of the well field, trunklines, or processing plants. The measure, however, would not eliminate the possibility of some people being exposed to significant or lethal levels of $H_2S$.

Application: This measure will be applied to the Proposed action and all alternatives.

22. H-4 Measure: No sour gas trunkline will be located closer than 1 mile to a populated area or sensitive receptor as identified on Map 2-1 in the FEIS. The applicants must use the best available engineering design (i.e., alignment, block valve type and spacing, pipe grade, etc.), best construction techniques (i.e., pipe depth, hydrostatic testing, etc.), and monitoring plans (i.e., surveillance, warning signs, etc.) as approved by the Authoirzed Officer to minimize both the probability of rupture and radius of exposure in the event of an accidental pipeline release of sour gas. A variance from the 1-mile distance may be granted by the Authorized Officer based on detailed site-specific analysis that would consider meteorology, topography, and special pipeline design and/or construction measures. This analysis would ensure that populated areas and sensitive receptors would not be exposed to an increased level of risk.

Effectiveness: This measure will reduce both the probability of a rupture and minimize the extent of exposure for both discomfort and lethal levels of $H_2S$ to sensitive receptors in the event of a sour gas pipeline rupture. The probability of rupture can be reduced by such measures as warning signs, burial depth, pipe thickness, and grade, while such measures as block valve types and spacing and pipeline alignment would minimize the exposure radius from the point of rupture in the event of an accident. See Attachment B.9 for a discussion of the effectiveness of block valve spacing and resultant exposure distances.

Application: This measure would be applied to the sour gas trunklines in the Proposed Action and all alternatives, specifically Northwest Pipelines's 30-inch diameter line, American Quasar's 30 and 36-inch diamter lines, and Exxon's 30-inch line for the Shute Creek Alternative.

## CONSTRUCTION

1. The Company shall schedule and attend a preconstruction conference with the Authorized Officer and his representative prior to commencing any construction activities on these (rights-of-way, permits). The Company or his representative and all of his contractors or agents involved with construction under these (rights-of-way, permits) shall attend this conference. The Company shall contact the Authorized Officer or his representative at least 10 working days (2 weeks) prior to the anticipated start of construction to schedule this conference.

2. Construction activities would be confined to the construction right-of-way along the length of the gathering lines, trunklines, and sales lines. Only those portions of the right-of-way needed for construction would be cleared of obstacles and debris.

3. Blading of the right-of-way would only be done as necessary for access for machinery and equipment, or for the trenching required for the installation of pipe. To further ensure vehicle safety, it may be necessary to construct temporary bridges or culverts across creeks and gullies on the working side of the right-of-way. Excavation and grading may be necessary to decrease the gradient and increase the stability of unstable slopes, especially in the steep terrain found in the well field. Grading and cut-and-fill excavation would be performed in a manner minimizing effects on natural drainage and slope stability. On steep terrain or in wet areas where the right-of-way must be graded at two elevations, or where diversion dams must be built to facilitate construction, the areas would be stabilized and restored upon completion of construction to resemble their original condition, or as required by the surface management agency or private landowner.

4. If blasting is necessary, the following safety precautions would be adhered to:

   A) In areas of human use, shots would be blanketed (matted).

   B) Landowners or tenants in proximity to the shot would be notified in advance so that livestock and other property could be adequately protected.

   C) Before detonation, a clearance would be made to ensure that construction personnel and equipment and local residents are in no danger.

   D) Fire protection measures would be implemented.

5. The Company shall perform all work with explosives and flammable materials in such a manner as not to endanger life or property. All storage places for explosives and flammable material shall be marked "DANGEROUS". The method of storing and handling explosives and flammable materials shall conform to recommended procedures contained in the "Blasters Handbook" published by E.I. du Pont de Nemours and Company, and in all federal, state, and local laws and regulations.

6. Within 30 days after conclusion of construction and operation, all construction materials related letter and debris shall be disposed of in accordance with instructions from the Authorized Officer.

7. Watering or other approved dust abatement procedures will be done to prevent servere wind erosion and loss of soil materials during construction.

8. The Company will be required to control off-road vehicular use within these (rights-of-way, permits).

   During construction, the Holder shall regulate access and vehicular traffic as required to protect the public, wildlife, and livestock from hazards associated with the project. The Holder shall permit free and unrestricted public access to and upon the right-of-way except in areas designated as restricted by the Holder. All restricted areas shall be approved in advance in writing by the Authorized Officer.

   The Holder shall be allowed, with prior written approval from the Authorized Officer, to close the road to public access for limited periods during the construction phase of the project should it be necessary to do so to protect and ensure public health and safety. At all other times, the Holder shall permit free and unrestricted public access to and upon the right-of-way.

9. During construction the Company shall regulate access and vehicular traffic as required to protect the public, wildlife, and livestock from hazards associated with the project. The Company shall permit free and unrestricted public access to and upon the (right-of-way, permit) except in areas designatd as restricted by the Holder or Authorizing Officer. All restricted areas shall be approved in writing by the Authorized Officer.

10. A transportation plan will be submitted as part of the CU Plan. This plan will cover approval of temporary, reconstructed, and newly constructed roads and will include clearing work, signing, rehabilitation, and uses associated with transportation needs. Overland access could be specified in lieu of road construction or reconstruction.

Whenever practical "cross country" access will be utilized without clearing vegetation or grading a roadbed. All construction and vehicular traffic is to be confined to the right-of-way or designated access routes, roads, or trails unless otherwise authorized. All temporary work roads to be used for construction will be rehabilitated after construction in accordance with he approved rehabilitation plan. Only one road or access route will be permitted to each site requiring access. Any existing transportation or utility rights-of-way will be used wherever practicable to minimize adverse environmental impacts and the proliferation of separate rights-of-way.

11. WF-2 Measure: During construction and operation phases, dogs, excepting guard dogs or seeing-eye dogs, will be prohibited from well sites and construction sites.

    Effectiveness: This measure would reduce harassment to wildlife species.

    Application: This measure will be applied to the Proposed Action and all siting and component alternatives.

12. WF-8 Measure: The critical ranges and other important wildlife areas will be avoided during the periods listed below during construction of linear facilities unless direction is otherwise given from the Authorized Officer. (See Wildlife Technical Report wildlife maps for location of specific areas.)

| Area | Period |
|---|---|
| Elk critical winter range | Nov. 15 to April 1 |
| Elk calving areas | May 15 to June 30 |
| Deer critical winter range | Nov. 15 to April 1 |
| Sage grouse leks | March 1 to June 30 |
| Golden eagle nests (within 1/2 mile) | February 1 to July 15 |
| Osprey nests (within 1/2 mile) | April 15 to August 15 |
| Prairie falcon nests (within 1/2 mile) | March 15 to August 1 |
| Merlin nests (within 1/2 mile) | April 15 to August 15 |
| Ferruginous hawk nests ( within 1 mile) | March 15 to July 15 |
| Cooper's hawk nests (within 1/2 mile) | April 1 to August 15 |
| Burrowing owl nests (within 1/2 mile) | April 15 to July 15 |
| Swainson's hawk nests (within 1/2 mile) | April 1 to July 15 |
| Cutthroat-Rainbow Trout (stream crossings) | April 15 to July 10 |
| Brown & Brook Trout (stream crossings) | Sept. 1 to Nov. 1 |

Effectiveness: Avoiding the areas listed above would eliminate many of the potential impacts to species of concern.

Application: This measure will be applied to the Proposed Action and all alternatives.

13. T-1 Measure: The companies will schedule their own and their contractors' large trunk activities to avoid the following high recreation demand weekends. This will normally cover three-day periods.

Memorial Day
Independence Day
Pioneer Day (July 24)
Labor Day
First two weekends of big game season

Effectiveness: This measure would eliminate the potential conflict between project vehicle activity and peak daily recreation travel demand associated with the high activity holiday weekends.

Application: This measure will be applied to the Proposed Action and all alternatives.

14. T-4 Measure: On federally permitted roads, stop signs, and advance warning signs will be installed in areas of interesecting traffic, construction, or conditions of dangerous operation.

Effectiveness: The traffic control and informational signing will help minimize the potential for accidents at intersecting roadways.

Application: This measure will be applied to the Proposed Action and all alternatives.

## DITCHING

1. The depth of the pipeline ditch would vary with the conditions encountered. The cover from the top of the pipe to the ground level would be 48 inches. Working areas of approximately 100 by 350 feet would be needed on each side of road and railroad crossings.

2. Generally, ditching operations would employ ditching machines in open areas and backhoes near rivers or in areas providing little working space; however, subsurface conditions may require different types of excavation. In areas where loose or unconsolidated rock is encountered, the ditch line may be ripped mechanically. If material encountered could not be ripped, it would be blasted. Blasting would be kept to a minimum and used only when necessary. An exception to mechanical excavation would be hand-digging to locate buried utilities such as other pipelines and cables.

3. Once the ditch has been backfilled, the right-of-way and other disturbed areas would be cleared of trash, brush, and other debris to prevent fire hazards. Some brush would be used to assist in stabilization and rehabilitation of the right-of-way. The right-of-way would be graded where needed, and all disturbed surfaces would be restored approximately to the preconstruction grade.

CLEARANCES

1. Under the terms of the Endangered Species Act of 1973, the Company will conduct surveys, no more than one year prior to disturbance, to determine if listed species or their habitats might be present on areas to be disturbed by any of the proposed action, or alternatives, regardless of land ownership. If it is determined that listed species or their habitats might be present and could be affected by the proposals, appropriate consultations with the U.S. Fish and Wildlife Service will be conducted by the federal authorizing agency. No activities will be authorized until consultation is complete as specified by Section 7(c) of the consultation process which would specify the mitigation measures to be carried out. The Biological Opinion issued by the Fish and Wildlife Service as a result of the consultation process will specify the mitigation measures to be carried out by the Company.

   The Holder shall develop a conservation plan consistent with the FWS Biological Opinion that will ensure the continued existence of threatened or endangered species is not jeopardized or that their critical habitat is not destroyed or adversely modified.

2. Any active golden eagle nest found within 1 mile of project activities will be protected from harassment during the critical nesting period because of provisions established by the Bald Eagle Protection Act which requires protection of the golden eagle and its nests.

3. Prior to any surface disturbing activity, the Company, in consultation with the Authorized Officer and the Wyoming State Historic Preservation Officer, shall make an inventory of all archaeological and historical sites within these (rights-of-way, permits) areas if it has not previously been done. the Company shall develop a cultural resources plan to locate cultural resources which would be directly affected by the project through the use of a Class III field survey. The plan will define inventory extent and intensity of the site-specific surveys.

4. Any cultural resource (historic or prehistoric site or object) discovered by the Company or any person working on his behalf, shall be immediately reported to the Authorized Officer. The Company shall suspend all operations in the area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer and state to determine appropriate actions to prevent the loss of significant cultural values. The Company will be responsible for the cost of evaluations and for mitigation. Mitigation may include rerouting or excavation, and any decision as to proper mitigation measures will be made by the Authorized Officer and state to determine appropriate actions to prevent the loss of

significant cultural values. The Company will be responsible for the cost of evaluations and for mitigation. Mitigation may include rerouting or excavation, and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the Holder.

5. The Company will provide an approved archaeologist to execute and monitor surveys and discoveries during construction of all project facilities.

6. The Company will provide a qualified paleontologist who would be approved by the Authorized Officer. The paleontologist will conduct an intensive survey of all areas to be distrubed according to the significance and mitigation needs. The paleontologist will be available, as needed, during surface disturbance. If the paleontologist determines that values will be distrubed construction will be halted until appropriate action can be taken.

## CROSSINGS

1. Where buried utilities are encountered, representatives from the utilities would be consulted regarding the proposed route of the pipeline right-of-way.

2. When crossing canals or irrigation ditches that are dredged to maintain depth, the pipeline would be buried underneath to a depth that would permit safe dredging operations.

3. Roadbeds that support railroads would be crossed by boring a hole beneath the bed, rather than by ditching across the surface. All paved and improved roads would be crossed by boring where conditions permit. Other infrequently used, unimproved roads would be ditched and restored.

4. Creek flow would be maintained during pipeline construction. When crossing creeks with muddy bottoms, downstream sedimentation would be minimized by implementation of the following techniques: (1) Creeks flowing in areas where the channel is narrow would have the flow diverted around the construction area by blocking the channel upstream of the crossing site and diverting the flow through the use of pumps and/or flumes; (2) Creeks flowing relatively flat areas where the channel is wide would have the flow diverted around the construction area by blocking a portion of the channel upstream of the crossing site. After construction is completed in that portion of the channel and the creek bottom is restored, than that portion of the channel would be reopened and the other portion blocked for construction.

5. Every effort would be made to minimize the effects of construcion on water flow. Upon completion of constructon, the gradient of the stream would be restored as nearly as practical. Stream banks would be restored to resemble original grade, and breakers or riprap would be placed along riverbanks where necessary to control erosion.

6. During construction of stream, creek,or river crossings, the drainage or storm runoff from riverbank staging areas would be controlled via detention basins, evaporation pits, or straw bale filters to ensure that levels of suspended solids, grease, or oil would not exceed receiving water standards.

7. All river, stream, and wash crossings required for access to project facilities will be at existing roads or bridges, except at locations designated by the Authorized Officer. Culverts or bridges will be installed at points where new permanent access roads cross live streams to allow fish unobstructed passage. Where temporary roads cross drainages or dirt fills, culverts will be installed

during construction and removed upon completion of the project. Any construction activity in a perennial stream is prohibited unless specifically allowed by the Authorized Officer. All stream channels and washes will be returned to their natural state as quickly as possible. All construction for stream crossings will also follow the Stream Protection section of the Erosion Control, Revegetation, and Restoration Guidelines stipulation.

8. The riparian zone of stream crossings shall be rehabilitated immediately after construction is completed. Until riparian vegetation is established, the disturbed area shall be protected on each side of the stream to prevent sediment contamination of the stream and/or erosion of the banks.

9. A buffer strip of terrestrial vegetation will be left between staging areas and riparian vegetation adjacent to the stream. Riparian vegetation will not be counted upon as a buffer strip because silt collected by the riparian vegetation might enter the stream during high water periods.

10. WF-9 Measure: Staging areas for stream crossing equipment will be located outside of the stream's riparian zone in order to reduce the possibility of silt entering into streams and to reduce disturbance to vegetation in the riparian zone. A maximum construction right-of-way of 25 feet would be used in ripairan areas to reduce disturbance. Variances to this must be approved by the Authorized Officer.

Effectiveness: This measure will reduce the total amount of riparian vegetation removed during construction, minimizing loss of stream bank cover, eroded material available to the stream, and habitat degradation from suspended solids and turbidity.

Application: This measure will be applied to the Proposed Action and all alternatives.

## EXISTING IMPROVEMENTS

1. Where fences are encountered along the right-of-way, adequate bracing would be installed at each edge of the right-of-way prior to cutting the wires and installing temporary gates. The opening would subsequently be controlled as necessary during construction. No gates or cattleguards on established roads over public land would be locked, blocked, or closed by the applicants. Any cattleguard damaged would be repaired to its original condition or replaced. If a natural barrier used for livestock control were damaged during construction, the applicant would adequately fence the area to prevent the escape of livestock.

2. Disturbance of improvements such as fences, roads, and watering facilities during the construction and maintenance of the rights-of-way must be kept to an absolute minimum. Immediate restoration of any damage to improvements to at least their former state will be required. Functional use of these improvements must be maintained at all times. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. A gate acceptable to the Authorized Officer shall be installed in the gate opening and kept closed when not in actual use. Where a permanent road is to be constructed or maintained, cattleguards shall be placed at all fence crossings.

3. If a natural barrier used for livestock control is broken during construction, the holder will adequately fence the area to prevent drift of livestock. In pronghorn antelope ranges, the fence may have to be constructed in a manner which allows for animal passage. All fencing constructed by the Company will meet BLM design requirements with input from Wyoming Game and Fish Department. Fence specifications will be determined on a case-by-case basis.

RESTORATION

1. Completed construction areas (including the right-of-way) and temporary access roads would be returned as nearly as practicable to the original condition or to that condition agreed upon between the applicant and the landowners or the Authorized Officer of the applicable agency. Right-of-way restoration techniques would be the same for federal, state, and private lands. All reasonable efforts would be made to control erosion and soil damage resulting from construction, rehabilitation, or maintenance and operations, including (but not limited to) construction of terraces, water bars, or other water diversion structures, and implementation of soil stabilization measures in erosion-prone areas.

2. In compliance with the CU Plan, the Company will reclaim the surface of distrubed areas to conform with adjacent terrain by replacing fills in the original cuts, replacing soil material, water barring, and revegetation the surface.

3. WF-5 Measure: Where the Authorized Officer determines that rehabilitation of temporarily disturbed areas within critical wildlife habitit on federal land will not be successful within five years from disturbance, the Company will be required to compensate for the lost habitat. Temporarily distrubed areas do not include those covered by permanent facilities like road beds, well site equipment, etc. Such critical wildlife habitat will be determined by the Authorized Officer in conjunction with Wyoming Game and Fish. compensation will include continued rehabilitation efforts on the disturbed areas and development and implementation of an off-site mitigation plan for similar critical habitat on federal land within the species use area that is in poor condition due to natural or man-made causes. The plan must be approved by the Authorized Officer who will coordinate with Wyoming Game and Fish.

Effectiveness: Implementation of this measure will have only limited effectiveness in mitigating impacts to wildlife critical range. "Successful rehabilitation within five years," as used above applies primarily to soils and vegetation critieria for defining success in rehabilitation. Big game critical ranges are generally dependent upon shrub habitats which provide forage during critical winter periods when grasses and forbs are covered by snow. Successful rehabilitation of critical range to shrub habitats would take from 10 to 50 years depending upon shrub species, soils, moisture, and a variety of other factors. Rehabilitation of disturbed areas to solid and vegetation success standards is a necessary first step in successful reestablishment of critical ranges.

Secondarily, even when critical range shrub habitats are reestablished along road and well pad edges, their value to wildlife will be limited due to wildlife's behavioral reaction to continued human activity. In additon, the mitigation measure specifies off-site mitigation of similar critical range "within the species use area." This terminology would unnecessarily limit the measure's effectiveness by not specifying mitigation possibilities for other species.

Application: This measure will be applied to the Proposed Action and all alternatives.

## VISUAL RESOURCES

1. A plan to minimize visual impacts from structures will be required as a part of the CU Plan. The Holder will design the pipeline routes and ancillary structures to blend into the existing environment so as to meet the minimum degree of contrast acceptable for the Visual Resources Management Class and Visual Quality Objectives in which the structures would be located. The Authorized Officer will evaluate and approve measures before construction begins.

2. The Company shall paint all permanent structures (on site for a period longer than 90 days after construction) a flat, noncontrasting color that is harmonious with the adjacent landscape. Exceptions to this requirement would be determined on a case-by-case basis by te Authorized Officer because of varying levels of sensitivity, or structures which require safety coloration inaccordance with Occupational Safety and Health Administration requirements. Prior to use, color selection will be approved by the Authorized Officer.

3. Measure: The Companies will be required to remove letter including broken equipment, work trash, and other man-produced material, from well field units, plant sites, and other areas of operation. Letter will be diposed of in approved sites.

Effectiveness: This measure will minimize adverse visual impacts from litter in the Project area.

Application: This measure will be applied to the Proposed Action and all alternatives.

## OPERATIONS

1. Prior to the beginning of operations, the Holder shall submit to the Authorized Officer a certification of construction, verifying that the facility has been constructed and tested in accordance with the terms of the right-of-way grant, and in compliance with the required plans and specifications, and applicable federal and state laws and regulations. An "as built" survey map will be submitted to the Authorized Officer within 60 days after construction is completed.

2. Upon receipt of a certification of construction, when all development and rehabilitation have been completed, a joint compliance check of the right-of-way shall be made by the Company and the Authorized Officer or designated representative to determine compliance with the terms and conditions of the grant. The Company shall perform, at its own expense, any required modifications or additional reclamation work for compliance with the terms of the grant.

3. The Holder shall comply with the applicable federal and state laws and regulations cncerning the use of pesticides (i.e., insecticides, herbicides, fungicides, rodenticides, and other similar substances) in all activities/operations under this Grant. The Holder shall obtain from the Authorized Officer approval of a written plan prior to the use of such substances. The plan should be submitted no later than December 1 of any calendar year that covers the proposed activities for the next fiscal year (i.e, December 1, 1983, deadline for a fiscal year 1985 action). If need for emergency use of pesticides is identified, the use must be approved by the Authorized Officer. The use of substances on or near the right-of-way shall be in accordance with the approved plan. A pesticide shall not be if the Secretary of the Interior has prohibited its use. A pesticide shall be used only in accordance with its registered uses and within other limitations if the Secretary has imposed limitations. Pesticides shall not be permanently stored on public lands authorized for use under this Grant.

4. Natural phenomena which occur on government land, such as avalanches, rising waters, high winds, falling limbs or trees, and other hazards, present risks to the Company's property which the Company assumes. The Company has the responsibility of inspecting the site, right-of-way, and immediate adjoining area for dangerous trees, hanging limbs, and other evidence of hazardous conditions and, after securing permission from the BLM, of removing such hazards in order to protect the Company's improvements.

5. Access roads necessary for operation and maintenance of the project will be clearly identified. Some of these access roads may be designated by the authorizing agency as closed for public use, including but not limited to, off-road vehicular travel.

6. The Company shall be responsible for preventive and corrective road maintenance from the beginning to completion of operations under this (grant, permit). This may ianclude, but not be limited to, blading roadway, cleaning ditches and drainage facilities, dust abatement, or other requirements as directed by the Authorized Officer.

## RECONNAISSANCE

1. Routine aerial reconnaissance flights along pipelines would continue for the life of the project to check for erosion problems and revegetation success as well as possible gas leaks.

## ABANDONMENT

1. At least one year prior to termination or to abandonment of the facilities authorized by this grant, the Holder shall contact the Authorized Officer to arrange a joint inspection of the right-of-way. The inspection will be held to agree on an acceptable abandonment and rehabilitation plan. The Authorized Officer must approve the plan in writing prior to the Holder commencing any abandonment and/or rehabilitation activites. The plan may include removal of drainage structures or surface material; recontouring; replacement of topsoil; seeding, mulching, etc.

2. Applicant Instituted Precautionary Measures

Specific precautions which will be incorporated by Exxon into the design, construction, and operation of the trunkline to ensure public health and safety are included in this Appendix. These measures represent Exxon's specific commitment towards ensuring public health and safety. They also meet or exceed the required federal measure being addressed. These Exxon commitments will become part of the terms and conditions of the right-of-way grant.

A. 2 Applicant Instituted Precautionary Measures

The La Barge project will incorporate state-of-the-art design, construction and operating practices to minimize the potential for the escape of sour gas. Specific precautions designed to assure public health and safety will include the following:

- The routing of the line to avoid populated areas where possible;
- The placement of block valve spacing designed to isolate shorter pipeline segments in populated areas. (US DOT allows for 20 mile block valve spacing);
- The use of leak and detection flow systems;
- The use of a design stress level for the trunkline not to be greater than 60% of the Specified Minimum Yield strength (SMYS). (US DOT specifications only call for a design not to exceed 72% of SMYS);
- The X-Ray (Radiograph) of all (100%) major field welds. US DOT requires that only 10% of major field welds be radiographed);
- The burial of the trunkline at a depth of 48 inches at a minimum. (US DOT requires a minimum depth of 30" in normal soil and 18" in consolidated rock);
- The air patrol of the pipeline, weather permitting, each month over the entire length of the trunkline. A formal leakage survey requiring a walkover of the entire pipeline will be conducted semi-annually. (US DOT requires that inspection flights be flown only semi-annually at highway crossings and annually at all other locations. US DOT requires a formal walkover survey only in intervals not to exceed one year);
- The use of a trunkline design which incorporates a 0.0625 inches (1/16th of an inch) corrosion allowance over and above the thickness required by the design formula. (US DOT does not require an increase in wall thickness to allow for corrosion);
- The use of a design factor of 0.5 (50%) of SMYS used for mainline valve assemblies, road crossings, above ground

crossings and scraper traps. (US DOT allows for the use of a 0.6 design factor).

- The installation of pipeline markers at all road crossings, utility crossings, fence lines, and points along the trunkline at a maximum interval of 500 feet. (US DOT does not specify a distance interval for placement of markers).
- The inspection of corrosion coupons on a quarterly basis in order to evaluate the extent of pipeline corrosion, if any. (US DOT requires inspection of corrosion coupons semi-annually).
- The operation of an inspection pig to establish baseline information on the trunkline. Inspection pigs will be operated one year after the initial baseline run and subsequent years as appropriate. Data will be analysed to determine the condition of the trunkline on an on-going basis. (US DOT has no requirements).

All of the above precautionary measures relate to the design, construction and/or operation of the pipeline. These measures exceed the applicable US DOT standards primarily because they represent the most recent technology and practices generally utilized in the industry today. It is believed that these newer specifications proposed by Exxon will have a significant effect in reducing the likelihood of pipeline incidents.

US DOT data for 1970 through 1981 shows that the incident rate for a 30" pipeline is 2.0 incidents per 10,000 mile-years. This rate reflects an incident data base for the 12 year period from 1970 to 1981. The pipeline for which the data on incidents was collected were, however, placed in service at various times during the century. About 10% of the existing pipelines, for instance, were placed in service well before 1940. These are included in the 50% which were placed in service before 1960, whereas only about 20% were placed in service during or after 1970. As a result, the technology used in designing, constructing and operating the pipeline constituting the US DOT data base can vary dramatically, depending upon the time of placement of service of the pipeline. In fact, the majority of (about 55%) service incidents reported in the US DOT data base for 1970

through 1981 occurred in pipelines installed in service before 1960. The US DOT data suggests that the pipelines installed before 1960 represent more than their fair share of total service incidents based on mileage in service.

The pipelines constituting the US DOT data base were designed to the US DOT standards in effect at the time of placement. In many instances the standards in effect did not equal current US DOT standards. Exxon proposes to design, construct and operate the La Barge project to standards significantly exceeding the current US DOT standards for the size of pipeline proposed by Exxon. As a result, it is expected that the incident rate of 2.0 incidents per 10,000 developed from the US DOT data base is an overly conservative estimate of the expected rate for a project designed to Exxon's stringent standards. The reductions in incident probability for a pipeline designed to Exxon's standards have been estimated by reviewing available US DOT data and applying Exxon's current engineering judgment.

Effects of Thicker Walls

As indicated above, the La Barge Project trunkline will be designed not to exceed 60% of the specified minimum yield strength and with a thickness of 0.625 inches (a 1/16th inch corrosion allowance). The US DOT data base suggests that service incident rates decrease with pipe thickness. The incident rate for pipeline designed to a wall thickness of 0.6, or more, is 1.45 incidents per 10,000 mile years for the US DOT data base. This is approximately 25% less than the incident rate of 2.0 incidents per 10,000 mile-years for a 30" pipeline based on US DOT (standards) data.

The institution of the additional pipe thickness and overdesign is expected to only reduce the incidence of corrosion and outside force incidents. These incidents represent only about 35% of all service incidents. As a result these precautionary measures are expected to reduce the overall incident rate (US DOT rate for a 30" pipeline) by about 8.5% (a 25% reduction due to increase wall thickness in corrosion and outside force incidents which represent 35% of all incidents). Table D-1 summarizes and compares estimated

TABLE D-1

PERCENT REDUCTION IN PIPELINE INCIDENT RATE ASSOCIATED WITH EXXON DESIGN STANDARD

| Protection | Percent Reduction in All Service Incidents | Type of Service Incident (Percent Reduction of US DOT Rate) | | | |
|---|---|---|---|---|---|
| | | Corrosion | Outside Force | Construction | Material Defect |
| Additional Pipe Thickness and Overdesign of Pipeline | 8.5 | 2.5 (25% of 10%) | 6.0 (25% of 25%) | - | - |
| Material Protection | 3.0 | 3.0 (30% of 10%) | - | - | - |
| Additional Burial Depth | 2.5 | - | 2.5 (10% of 25%) | - | - |
| More Stringent Inspection Program | 10.0 | 1.0 (10% of 10%) | 2.5 (10% of 25%) | 3.0 (10% of 30%) | 3.5 (10% of 35%) |
| Radiographic Testing | 20.0 | - | - | 20.0 | - |
| Pipeline Marking | 2.5 | - | 2.5 (10% of 25%) | - | - |
| Percent Reduction in US DOT Incident Rate | 46.5 | 6.5 | 13.5 | 23.0 | 3.5 |

Note: Corrosion incidents account for 10% of all service incidents. Outside force incidents account for 25% of all incidents. Construction defects account for 30% of all incidents, and material defects account for 35% of all service incidents for a 30-inch pipeline.

reductions in incident rate by type of incident, and by type of precautionary measure instituted.

Effect of Burial Depth

Exxon proposes to bury the trunkline at a minimum depth of 48 inches. The US DOT standard is significantly less stringent than this. It has been suggested in a report prepared for the American Gas Association that increased burial depth can reduce the probability of outside force incidents. Based upon engineering judgement, Exxon estimates that the increased burial depth will result in a 10% reduction in the probability of outside force service incidents. The US DOT data base confirms this estimate. Approximately, 1,045 service incidents occurred from 1970 to 1981 on pipelines buried at depths of about two feet or greater. Of that 1,045, 605 or 58% occurred to pipes buried at 25-36 inches (depth of cover) and 440 incidents occured in pipelines greater than 36 inches. The La Barge trunkline will be covered by a minimum of 48 inches of cover. For purposes of this analysis, it was assumed that 50 percent of all pipelines buried greater than two feet are buried from 25 to 36 inches and the remaining 50 percent are buried at depths greater than 36 inches. Thus with this assumption, if the pipelines in the US DOT data base had been covered by a minimum of 48 inches, it would be expected that only 880 incidents (2 times 440 incidents) rather than 1,045 incidents would have occurred. This translates to about a 16% reduction in incidents from the 1,045 experienced. A conservative value of 10 percent reduction in incidents was used for this analysis. Of the total number of service incidents, outside force incidents account for only about 25%. A reduction in the probability of outside force incidents by 10% is expected to result in a reduction in the total incident rate of 2.5%.

Effects of Operational Inspection

As a component of the proposed project an extensive construction and operation inspection program will be instituted. This program

will include monthly fly-over and semi-annual walkover surveys. In addition, inspection pigs will be run through the trunkline. Industry experience has shown that these measures tend to reduce the incidence of all service incidents (corrosion, outside force, construction, and materials defects). An overall reduction of 10% is estimated.

Effects of Material Protection

The trunkline proposed to be constructed for the La Barge Project will be both coated and cathodically protected. The coating will be of the most recent technology available. The US DOT data from which the incident rate of 2.0 incidents per 10,000 mile-years was calculated (for a 30" pipe based on US DOT data), consists of pipelines with various degrees of coating and cathodic protection. The US DOT data base shows that from 1970 to 1981 there were only 407 corrosion incidents of a total of 750 corrosion incidents on coated and cathodically protected pipeline. This translates to a corrosion rate of 1.4 corrosion incidents per 10,000 mile-years. This value is 30% lower than the analogous rate of 2.0 corrosion incidents for all pipeline, either protected or not. As a result of the implementation of corrosion protection it is expected therefore that there will be a 30% reduction in corrosion incidents (which represent 10% of all service incidents). This translates into a 3% reduction in the overall service risk rate of 2.0 incidents per 10,000 mile-years for pipelines designed only to US DOT standards for a 30" pipe.

Effect of 100% Radiography of Field Welds

All major field welds will be radiographed (100%). The US DOT requires that only 10% of all major field welds be radiographed. Assuming in the worst case that any given weld is flawed, the US DOT procedure insures that only 10% of the time, the flaw will be discovered. With 100% radiographing as proposed, 100% of flaws will be discovered. This implies that there will be a 90% reduction in girth weld flaws (i.e., incidents). Girth welds account for about 60 to 70% of construction incidents, with construction incidents

responsible for 30% of all incidents. This translates to a reduction in the US DOT derived incident rate by approximately 20%.

Effects of Marking Improvements

The proposed project will involve an extensive system of pipeline marking not to exceed an interval of at a maximum, 500 feet. A major contributor to pipeline incidents is outside force. The institution of markers will tend to reduce the probability of outside force incidents, since the presence of the pipeline will be advertised. The US DOT does not require an interval distance between markers. As a result of Exxon's proposed marking plan, it is expected that outside force incidents may be reduced by 10%. This constitutes an overall reduction in service incidents of 2.5% service (since outside force incidents account for 25% of all incidents).

Overall Effect of All Measures

Implementation of all the precautionary measures proposed by Exxon for the La Barge project is expected to reduce the incident rate for a 30" pipeline designed to US DOT standards by 45%.

Application of a 45% reduction in the incident rate for 30" pipelines from the US DOT data (20 incidents per 10,000) results in a most probable (or likely) incident rate of 1.1 incidents per 10,000 mile-years. Assuming that 10% of all incidents are ruptures, results in a rupture rate for a pipeline designed to Exxon's standards of 1.1 ruptures per 100,000 mile-years.

# APPENDIX B

## FEED GAS TRUNKLINE

## SEGMENT ALTERNATIVES

## ADDENDUM ENVIRONMENTAL ASSESSMENT

## FINDING OF NO SIGNIFICANT IMPACT

## RILEY RIDGE NATURAL GAS PROJECT,

## SOUR GAS PIPELINE ALTERNATIVES

DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

# FEED GAS TRUNKLINE

# SEGMENT ALTERNATIVES

ADDENDUM

TO

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT TO THE

RILEY RIDGE NATURAL GAS PROJECT FEIS

SOUR GAS PIPELINE ALTERNATIVES

LOCATED IN

SUBLETTE AND LINCOLN COUNTIES

WYOMING

EA NO. WY-041-EA4-97

PREPARED BY
ROCK SPRINGS DISTRICT OFFICE
ROCK SPRINGS, WYOMING

SEPTEMBER 1984

TABLE OF CONTENTS

Page

Chapter 1

Description of the Proposed Action and Alternatives.....1

Chapter 2

Affected Environment and Environmental Consequences.....4

Chapter 3

Comparative Analysis.....7

Chapter 4

Consultation and Coordination.....10

Appendix

Map A Trunkline North Segment Change
Map B Trunkline South Segment Change

# EXXON'S FEED GAS TRUNKLINE

# ALTERNATIVE ALIGNMENT

## Chapter 1

## DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

### INTRODUCTION

The Riley Ridge Natural Gas Project (see Riley Ridge Natural Gas Project DEIS), in part, includes the construction, operation, and abandonment of a feed gas trunkline for transporting sour gas to treatment plants. A single proposed routing for two parallel trunklines, one to Exxon's Shute Creek plant site and one to Northwest's Craven Creek plant site, was analyzed in the Riley Ridge EIS.

The EIS identified possible impacts to the health and safety of residents who live near the feed gas trunkline if a rupture were to occur. As a result, the health and safety mitigation measure H-4 (page 3-9 of the FEIS) was developed. This measure states that:

> No sour gas trunk line would be located closer than 1 mile to a populated area or sensitive receptor as identified on Map 2-1 in the FEIS. The applicants must use the best available engineering design (i.e., alignment, block valve type and spacing, pipe grade, etc.), best construction techniques (i.e., pipe depth, hydrostatic testing, etc.), and monitoring plans (i.e., surveillance, warning signs, etc.) as approved by the Authorized Officer to minimize both the probability of rupture and radius of exposure in the event of an accidental pipeline release of sour gas.
>
> A variance from the 1-mile distance may be granted by the Authorized Officer based on detailed site-specific analysis that would consider meteorology, topography, and special pipeline design and/or construction measures. This analysis would ensure that populated areas and sensitive receptors would not be exposed to an increased level of risk.

Alternative routings were subsequently analyzed in the document entitled "Supplemental Environmental Assessment to the Riley Ridge Natural Gas Project FEIS - Sour Gas Pipeline Alternatives". This environmental document is included as Attachment C in the Riley Ridge Natural Gas Project Record of Decision (ROD),January 1984.

The Supplemental Environmental Assessment (EA) analyzed three alternative routes for the trunkline. The result was a finding of no significant impact (FONSI). The ROD concluded that any of the routes would be acceptable provided a risk assessment showed that populated areas and sensitive receptors would not be exposed to an increased level of risk.

Between March 23 and July 12, 1984, Exxon met with residents along the proposed trunkline. The purpose of the meetings was to discuss their proposal, explain the health and safety design, and contingency provisions to surface concerns and unforeseen problems.

On July 12, 1984, Exxon submitted to the BLM their (draft) Individual Risk Assessment to the populated areas and sensitive receptors located along the trunkline. The objective of this risk assessment was to determine the level of risk to which each sensitive receptor, within one mile of the pipeline, would be exposed, and to determine whether this risk is acceptable with respect to the established criteria in the EIS.

As a result of the above meetings and the risk assessment, Exxon has proposed an alternative alignment for two segments of their proposed feed gas trunkline (see maps A and B). These proposed changes were presented by Exxon at the BLM public meeting relative to Exxon's proposed feed (sour) gas trunkline held on July 24, 1984. An "Alternate Trunkline Routing Addendum" to Exxon's Individual Risk Assessment for the changes in alignment was submitted to BLM by Exxon several days subsequent to the public meeting.

This environmental assessment is an addendum to the "Supplemental Environmental Assessment to the Riley Ridge Natural Gas Project FEIS-Sour Gas Pipeline Alternatives". It is an impact analysis of Exxon's proposed alignment changes to their proposed feed gas trunkline location.

## PURPOSE AND NEED

The Purpose and Need for the Riley Ridge Natural Gas Project was identified in the DEIS (Pages 1-3). This EA analyzes the impacts of alternative trunkline alignment adjustments to Alternative 1 analyzed in the Supplemental EA to the Riley Ridge EIS on Sour Gas Pipeline Alternatives (January 1984).

## PROPOSED ACTION

### General Description

The proposed action is the identification and construction of a sour gas pipeline from the well field terminus of Exxon to the Shute Creek plant site. This was originally described and analyzed under the Shute Creek alternative in the Riley Ridge DEIS and FEIS and in the Supplemental EA to the Riley Ridge EIS.

The selection of any alternative described in this EA and shown on Maps A and B would not change the construction schedule or any of the methods of construction or mitigation as described in the DEIS or FEIS.

Alternative Trunkline Routing

Exxon Company U.S.A. (Exxon) has proposed an alternative routing for two segments of their proposed feed gas trunkline (Alternative 1 identified in the Supplemental EA). The northern segment (Map A) consists of a rerouting of the trunkline further north and east of Dry Piney Camp (Wexpro's Field Office) than previously proposed. The second segment (Map B) consists of a rerouting of the trunkline further west of the sensitive receptors on LaBarge Creek Road.

Alternative 1

The northern change (Alternative 1-1A) is essentially to accommodate the location of a single centralized dehydration unit. The dehydration site would be located in the SE/4 NE/4, Sec. 35, T. 28 N., R. 114 W. approximately 1.5 miles north of Dry Piney camp. The shortest distance for routing the pipeline would be in a southeasterly direction 2.9 miles to Saddle Ridge.

The southern change (Alternative 1-1B) is proposed to increase the distance between the trunkline and sensitive receptors (refinery, workshop, and residence) on LaBarge Creek Road.

Alternative 2

North Segment - The alternative (1-2A) would be an alignment 1.1 miles due south of the dehydration unit to the originally proposed alignment, then east-southeast 2.4 miles to Saddle Ridge.

South Segment - The alternative would be no change from Alternative 1, the proposed route analyzed in the Supplemental EA.

## CHAPTER 2

## AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The proposed action pipeline route (as described in the Riley Ridge EIS for the Shute Creek Alternative) and Alternative #1 (as described in the Supplemental EA to the Riley Ridge EIS) originate and end at the same points. Minor alignment variations of a few miles occur in between. In addition, the proposed alignment adjustments included in this Addendum EA entail changes that are within one mile of the alignment of the Supplemental EA, Alternative #1. Therefore, the description of the affected environment is the same for this EA as that discussed in the Riley Ridge EIS and the Supplemental EA.

Furthermore, there would be no change in impacts for the following resources, since the only differences among the alternatives are primarily a function of on-the-ground location: socioeconomics, water resources, air quality, visual resources, cultural resources, recreation resources, wilderness, timber resources, agriculture/grazing, transportation networks, and noise. Nor would there be any difference in the Mandatory Items listed below:

Threatened or Endangered Species
Floodplains and Wetlands
Wilderness Values, Areas of Critical Environmental Concern, and Wild and Scenic Rivers
Visual Resource Management
Prime or Unique Farmlands
Social and Economic Values
Cultural or Historical Resource Values
Water Quality
Air Quality
BLM Land Use Plan Conformance.

Impacts which do differ are discussed below.

### WILDLIFE AND FISHERIES

North Segment (Map A)

Alternative 1-1A - This alternative includes 2.9 miles of trunkline. During construction, 35 acres of winter elk, summer deer and winter/year-long moose habitat will be temporarily disturbed for two seasons. This is an increase of 6 acres over that identified in the Supplemental EA for Alternative #1.

Alternative 1-2A -This alternative involves 3.5 miles of trunkline. During construction, 42 acres of winter elk, summer deer and winter/year-long moose habitat will be temporarily disturbed for two seasons. This is an increase of 13 acres over that identified in the Supplemental EA for Alternative #1.

South Segment (Map B)

Alternative 1-1B - This alternative involves 3.4 miles of trunkline. During construction 41 acres of winter elk, winter/year-long deer and critical antelope habitat would be temporarily disturbed for two seasons. This is an increase of 6 acres over that identified in the Supplemental EA for Alternative #1.

There would be no change in fisheries since the same streams would be crossed in every case.

HEALTH AND SAFETY

North Segment (Map A)

Alternative 1-1A - The Dry Piney camp sensitive receptor, with its eight homes and an office, would be located 1.09 miles further from the trunkline (or a total distance of 1.43 miles) than the route considered in the Supplemental EA. The individual annual risk of exposure (chances per 100,000) to a significant and lethal dose of $H_2S$ would be 0.3 and 0.005 respectively, as compared to the Supplemental EA analyzed routes risk of 0.4 and 0.2 respectively (Draft Health and Safety Individual Risk Assessment for Exxon's LaBarge Project, July 1984).

Alternative 1-2A - Dry Piney Camp would be .34 miles from the trunkline or the same as the route analyzed in the Supplemental EA. The individual annual risk of exposure to a significant and lethal dose of $H_2S$ would be 0.4 and 0.2 respectively.

South Segment (Map B)

Alternative 1-1B - Three sensitive receptors (refinery building, workshop and residence) would be located 1.02, 1.11, and 1.21 miles respectively from the trunkline. This is a respective increase of .57, .46, and .37 miles further from the trunkline than the supplemental EA Alternative #1 route. The individual annual risk of exposure (chances per 100,000) to a significant and lethal dose would be:

| | Significant Dose | Lethal Dose |
|---|---|---|
| Refinery Building | 0.5 | 0.05 |
| Workshop | 0.5 | 0.02 |
| Residence | 0.4 | 0.01 |

As compared to the route analyzed in the Supplemental EA:

| | | |
|---|---|---|
| Refinery Building | 0.8 | 0.4 |
| Workshop | 0.7 | 0.3 |
| Residence | 0.6 | 0.1 |

SOILS AND VEGETATION

North Segment (Map A)

Alternative 1-1A - During construction, 35 acres of soils and vegetation will be temporarily disturbed for this alternative. This is an increase of 6 acres over that identified for the Supplemental EA analyzed route.

Alternative 1-2A - During construction, 42 acres would be temporarily disturbed. This is an increase of 13 acres over that identified for the Supplemental EA analyzed route.
There would be no change in the number of sensitive rehabilitation acres disturbed.

South Segment (Map B)

Alternative 1-1 - During construction, 41 acres would be temporarily disturbed. This is an increase of 6 acres over that identified for the Supplemental EA analyzed route.

There would be no change in the number of sensitive rehabilitation acres disturbed.

There are no unavoidable adverse impacts or long-term environmental consequences that have not already been identified in the Riley Ridge EIS.

CHAPTER 3

COMPARATIVE ANALYSIS

The following table compares only the impacts that are different from the Supplemental EA Alternative #1 as described in the Supplemental EA and Riley Ridge EIS. All other impacts would be the same or are only minimally different.

COMPARISON OF IMPACTS SUBSEQUENT TO MITIGATION 1/

| Item | Proposed Action 2/ North Segment | Proposed Action 2/ South Segment | North Segment Alt. 1-1 | North Segment Alt. 1-2 | South Segment Alt. 1-1 |
|---|---|---|---|---|---|
| Health & Safety -Miles of trunkline 3/ | 2.4 | | 2.9 (+.5) | 3.5 (+1.1) | |
| | | 2.9 | | | 3.4 (+.5) |
| -Sensitive Receptor Miles from trunkline | | | | | |
| Dry Piney Camp | .34 | | 1.43 (+1.09) | .34 (0) | |
| Refinery Building | | .45 | | | 1.02 (+.57) |
| Workshop | | .65 | | | 1.11 (+.46) |
| Residence | | .84 | | | 1.21 (+.37) |

COMPARISON OF IMPACTS SUBSEQUENT TO MITIGATION [1]

| Item | Proposed Action[2] North Segment | Proposed Action[2] South Segment | North Segment Alt. 1-1 | North Segment Alt. 1-2 | South Segment Alt. 1-1 |
|---|---|---|---|---|---|
| -Individual Annual Risk of Exposure to $H_2S$ (Chances per 100,000); Receptor[4] | | | | | |
| Significant Dose | 0.4 | | 0.3 (-0.1) | 0.4 (0) | |
| Lethal Dose | 0.2 | | 0.005 (-0.195) | 0.2 (0) | |
| Significant Dose | | 0.8 | | | 0.5 (-0.3) |
| Lethal Dose | | 0.4 | | | 0.05 (-0.35) |
| Wildlife North Segment winter elk, summer deer, winter/yearlong moose (acres) | 29 | | 35 (+6) | 42 (+13) | |
| South Segment winter elk, winter/ yearlong deer, critical antelope (acres) | | 35 | | | 41 (+6) |
| Soils and Vegetation Disturbance (Acres) | 29 | 35 | 35 (+6) | 42 (+13) | 41 (+6) |

1/ Note: Numbers shown in parentheses are the difference between that alternative segment and the proposed action segment.

2/ Proposed action: This is the trunkline alignment indicated as Alternative 1 in the supplemental EA to the Riley Ridge EIS. The Supplemental EA is included as Attachment C in the Riley Ridge ROD.

3/ Miles of Trunkline: This refers to only the Proposed Action segment and Alternative segment miles being compared.

4/ Receptor: The receptors represented are Dry Piney Camp for the Northern Segment and the Refinery Building for the Southern segment. The Refinery Building is the closest receptor to the trunkline.

SUMMARY

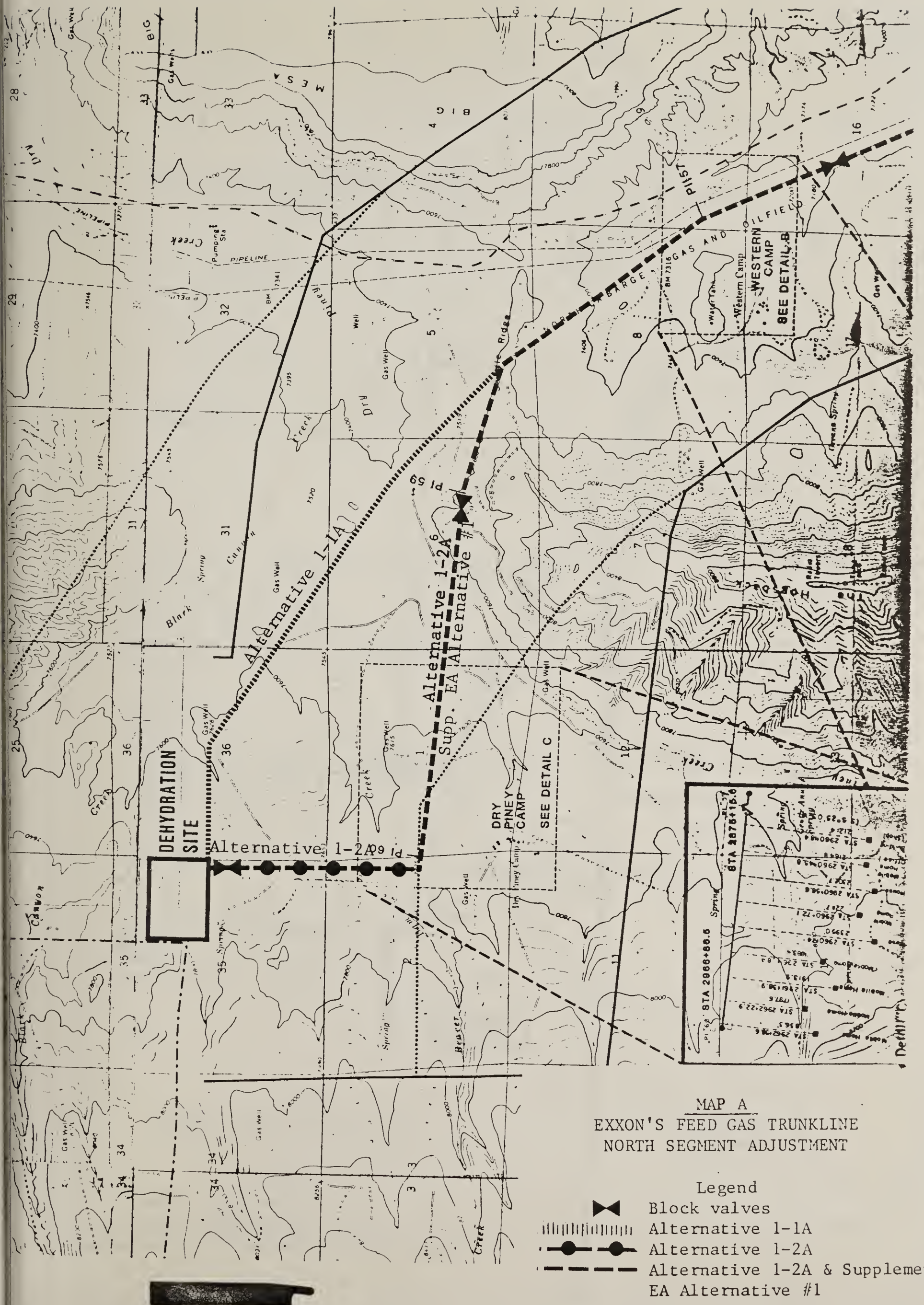
Construction and operation of the trunkline according to the proposed segment adjustments would not exceed the significance criteria established in the Riley Ridge EIS.

# CHAPTER 4

## CONSULTATION AND COORDINATION

A public meeting was held July 24, 1984, in LaBarge, Wyoming, during which the proposed trunkline segment changes were presented. This meeting was attended by approximately 80 members of the public. No adverse comments were received relative to the segment changes.

A petition, with twenty-three signatures, to change the route of Exxon's Sour Gas pipeline was received September 14, 1984. The petition was initiated by the LaBarge concerned Homeowners Association.




MAP A
EXXON'S FEED GAS TRUNKLINE
NORTH SEGMENT ADJUSTMENT

Legend
- Block valves
- Alternative 1-1A
- Alternative 1-2A
- Alternative 1-2A & Supplemental EA Alternative #1

MAP B
EXXON'S FEED GAS TRUNKLINE
SOUTH SEGMENT ADJUSTMENT

Legend

- Block valves
- Alternative 1-1B
- Supplemental EA Alternative #1

# FINDING OF NO SIGNIFICANT IMPACT (FONSI)
# RILEY RIDGE NATURAL GAS PROJECT, SOUR GAS PIPELINE ALTERNATIVES

The attached environmental assessment (EA) is an addendum to the Supplemental EA to the Riley Ridge Natural Gas project final environmental impact statement (FEIS). The EA analyzes two segment changes in Exxon's proposed feed gas trunkline alignment. The trunkline will transport sour gas from the well field to the Shute Creek plant site. The purpose of this EA is to identify any additional impacts which might result from implementation of these changes which would differ from those analyzed for Alternative #1 in the Supplemental EA.

This FONSI serves as the decision on whether or not a supplemental EIS is necessary for the above action. A decision document will be prepared on the project that will state the decisions on actions analyzed in the FEIS as well as those analyzed in the Supplemental EA and this addendum EA.

If either of the alternative trunkline alignment adjustments described in this EA are selected, all mitigation measures required or recommended in Chapter 4 of the DEIS and all changes, deletions, and additions as stated in the FEIS, will also be required or recommended. The action is in conformance with current Bureau of Land Management policies and regulations, and the objectives in existing land and resource management plans.

Based upon the analysis in the attached EA, I find that the trunkline alignment adjustments as mitigated would not have significant impacts on the human environment different from those which were analyzed in the FEIS. Therefore, I conclude that no supplemental EIS is necessary.

W. Wilson Patten — 9-27-84

Area Manager, Pinedale Resource Area — Date

R116W • R115W • R114W • R113W • R112W • R111W

T28N

T27N

Big Piney Compressor Station

EAST GREEN RIVER ALTERNATIVE

DEHYDRATION SITE

ALTERNATIVE 1 REROUTE

ALTERNATIVE

HOGSBACK ALTERNATIVE

ALTERNATIVE

Dry Piney Camp

Western Camp

Calpet

Rainbow Camp

Viola

La Barge

SUBLETTE CO

LINCOLN CO

SUBLETTE CO

ABSAROKA RIDGE

DEADLINE RIDGE

DRY PINEY BASIN

COLORADO DESERT

Big Piney

Dry

Lackey Draw

Chimney Butte

Basin

Draw

Reardon Draw

Chapel Canyon

Figure Four Canyon

Canyon

Bird Canyon

Wildcat Canyon

Pine Grove Draw

Narrow Ridge

Lake Ridge

South Ridge

Deadline Ridge

Muddy Creek

Shafer Creek

Sheep Creek

Long Hollow

Pine Hollow

Graveline Hollow

Hogback Ridge

Crawford Mountain

Big Mesa

Dry Mesa

Clara Birds Nappie

Indian Mountain

Fontenelle Creek

Miller Creek

Mahogany Creek

Bald Knoll

Pinnacle Butte

Pinnacle Buttes

Pinnacle Buttes Gas Plant

Pinnacle Buttes Trailhead

Pinnacle Buttes Campground

Pinnacle Buttes Airstrip

Pinnacle Buttes Gas Field

Pinnacle Buttes Gas Plant

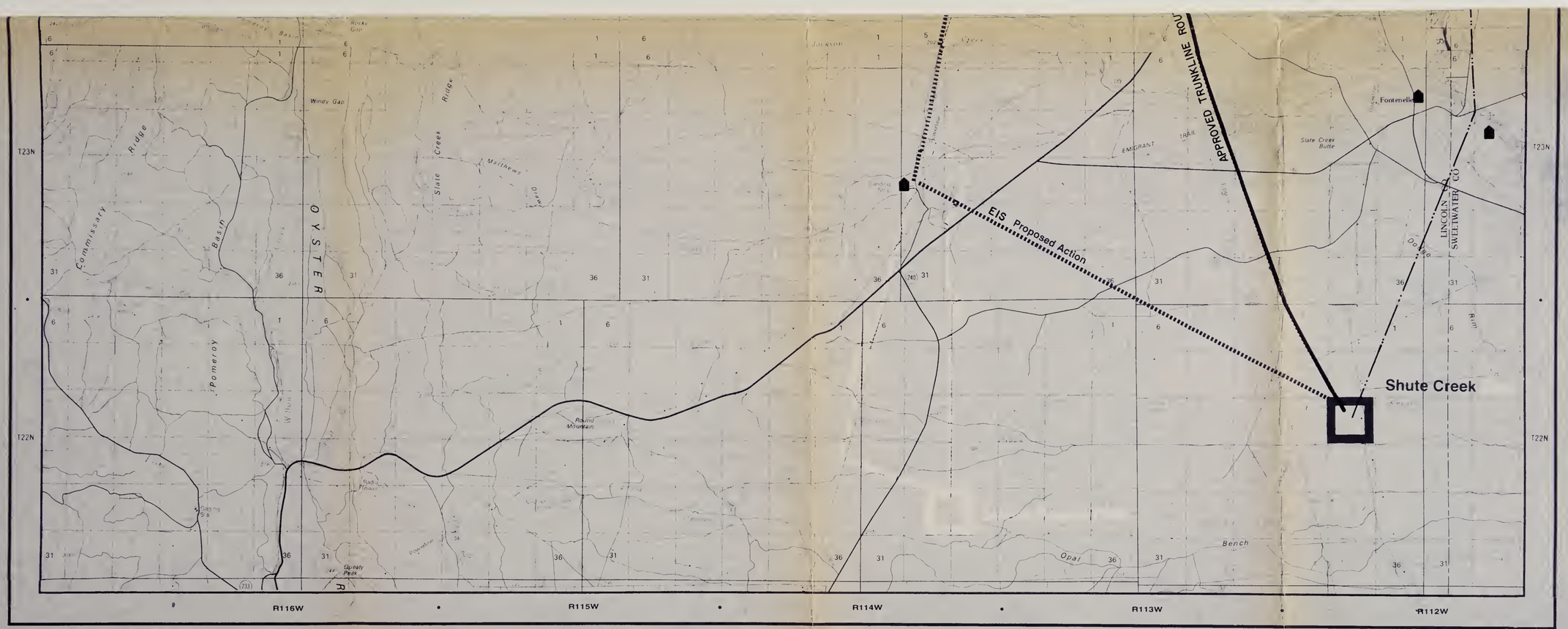
Pinnacle Buttes Trailhead

Pinnacle Buttes Campground

Pinnacle Buttes Airstrip

Pinnacle Buttes Gas Field

LEGEND
Exxon's Shute Cr. Plant Site
Sensitive Receptors
Sensitive Receptors Purchased by Exxon
EIS Proposed Trunkline Origin
Dehydration Site & New Trunkline Origin
Approved Trunkline Route
0 1 2 3 4 5 miles
N
WEST
ALTERNATIVE 1 REROUTE
ALTERNATIVE 1
EIS Proposed Action
NARROWS
Alternative 2
Alternative 3
(ALTERNATIVE 1 REROUTE)
EAST GREEN RIVER ALTERNATIVE
LINCOLN CO
SWEETWATER
SWEETWATER CO
T26N
T25N
T24N
T 26 N
T 25½ N
T 25 N
Fontenelle
Sullivan
Hollow
Ridge
Creek
Canyon
Hill
Palisades
Anderson
Delaney
Murdock
Golden
Sheep
Hogbacks
Mountain
Basin
Fork
Pine
Bench
Cabin
Cow
Camp
Trail
Spring
Dry
Little
Big
Muddy
Meadows
Emigrant
Subiette Cutoff
Subiette Cut-off
Section
Township
Range




MAP 1 EXXON LABARGE PROJECT–APPROVED FEED GAS TRUNKLINE AND ALTERNATIVES

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ROCK SPRINGS DISTRICT
10/84

BLM Library
Denver Federal Center
Bldg. 50, OC-521
P.O. Box 25047
Denver, CO 80225

#55066005
ID;88074145

TD
195
.G3
R54
1984
Suppl.

Jackson
1
1
5
1
1
6
6
189
RUNKLINE ROU
R113V
6